PROJECT DESIGN: STUDENT LEARNING GUIDE

Project: The Game of Life: Plant and Animal Cells Vs. Microorganisms

Driving Question: How might businesses benefit from knowledge of plant and animal cells and the ways that microorganisms benefit or harm the cells?

Final Product(s) *(presentations, performances, products and/or services)*	**Learning Outcomes/Targets** *(knowledge, understanding, and success skills needed by students to successfully complete products)*	**Checkpoints/Formative Assessments** *(to check for learning and ensure students are on track)*	**Instructional Strategies for All Learners** *(provided by teacher, other staff, experts; includes scaffolds, materials, lessons aligned to learning outcomes and formative assessments)*
(individual/team) A Cliff Notes Cell and Microorganism Guidebook Comic Book/Storyboard Narrative Game Pieces/Images	Plant and animal cells are similar, but have many differences. Cells are made up of different parts There are different types of microorganisms. Some are beneficial and some are harmful	• Science journal	• In partner groups students will participate in an in-house field trip to the school yard, where they will learn about microorganisms. • Record information about the microorganisms. • Using iPads or tablets, students will photograph the microorganisms.
	Cells encounter microorganisms during their life cycle that can be harmful or helpful	• Comic Book/ Storyboard	
	Different types of cells have different parts: a plant cell *(membrane, wall, cytoplasm, nucleus, chloroplasts)* and of an animal cell *(membrane, cytoplasm, and nucleus).*	• Science journal • Art work: cell models *(either 3 dimensional for the board game or 2 dimensional for the video game)*	• Teacher models 3D modeling or 2D rendering/ artistic techniques. • Students study images of plant and animal cells. • Record notes about the different parts of the cell and their location. • Create computer drawings for the digital game or 3D game pieces.
	I can use research skills to listen to experts, read, comprehend, and formulate a narrative based on the answers gleaned during research.	• Science journal check	• Media center specialist will work with students on proper research practices. • Teacher will share active listening techniques.
	I can develop and strengthen my writing as needed by planning, revising, editing, rewriting, or typing my research topic for a specific purpose and audience.	• Observation of peer editing and giving feedback on aspects of their research. • Research report	• ELA teachers will work with students on organizing their writing.

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	I can reflect on my work for this project.	Self-Reflection on Project Work Rubric: https://drive.google.com/file/d/1bOYx-o2YlIF7rDne4Y3T-KzjEKX8UM2Y9/view	Review rubric and expectations Upload rubric to digital portfolio
(Team) Design a board game or a digital game that showcases knowledge of cells and microorganisms.	I can use software and artistic technique to create a digital game or game pieces, cards, and game boards that showcase how cells are different and what happens to them as they interact with microorganisms.	• Teacher will monitor the work of students and assist when necessary. • In process critique of games.	• Technology integration specialist will work with students on utilizing appropriate software *(such as Canva, Tinkercad, Pixlr, Scratch, etc.).*
	Designers receive feedback on prototypes before redesigning. Users should be consulted at many stages in the process.	• Self-Reflection on possible improvements on a future design for the game/comic books after interacting with users.	• Other students check out the comic books and try games. • Next they share what they learn by playing the games and reading the comic books.

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